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## NEW, IMPROVED ELECTRIC BICYCLE

### **FIELD OF INVENTION:**

1. The present invention relates in general to electric powered bicycles, and more particularly to new, improved technology for electric powered bicycles that provides, among other things, steeper and more efficient hill climbing ability, longer range, and a smoother ride than the prior art, plus regenerative pedaling.

### **BACKGROUND OF THE INVENTION:**

2. Prior art electric drives for bicycles can be divided into the following four basic types:

- 1) Friction drive on the tire;
- 2) Drives through the pedal shaft to the rear wheel;
- 3) Direct drives to the rear wheel; and
- 4) Wheel hub motors.

3. The cheapest and simplest type of electric drive for a bicycle is a friction drive on the front or rear tire. This method is so inefficient that it is almost impractical. However this type will probably continue to be built and sold, because they can be easily installed on an existing bicycle as a kit. Patents 6,065,557 to von Keyserling, 5,316,101 to Gannon, and 3,961,678 to Hirano contain examples of this type of drive.

4. State of the art drives through the pedal shaft to the rear wheel are usually heavy, bulky gearboxes with electric motors attached and a pedal shaft protruding on each side. The